

# THE WILD (FERAL) PIGS OF AUSTRALIA : THEIR ORIGIN, DISTRIBUTION AND ECONOMIC IMPORTANCE

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Figs. 1, 7; Plates I-III (Figs. 2-6)

## INTRODUCTION

Man in the process of colonizing the various land masses of the world has been responsible for deliberately or accidentally introducing many exotic animals into new environments. When these free living or wild animals originate from domestic stock they are frequently referred to as 'feral', although the word 'maroon', of French origin, is occasionally used.

Zoologists seldom give these feral animals the same attention as native fauna, although they may become of considerable importance either as vermin, as a source of economic wealth or through the destruction of native wild life.

Over a period of several years data relating to the Australian feral pigs has been collected primarily to assess their actual or potential role in the spread of infectious disease. Some information of general interest acquired in the course of that investigation is presented in this paper. The subject of the role of feral pigs in the spread of infection is discussed elsewhere.

## SOURCES OF INFORMATION

A request for information was made through the press, scientific and farming journals, government departments and to many individuals. Approximately 700 copies of a circular letter (Pullar 1947) were distributed and about the same number of replies received. The number of reports dealing with the various States were:—Queensland 369, New South Wales 99, Victoria 76, Tasmania 5, South Australia 67, Western Australia 43 and Northern Territory 40.

## ORIGIN

In many cases local residents were able to give details regarding the origin of the colonies. These were many and varied and included:—(a) the escape of unrestrained domestic stock, (b) accidental escape of domestic stock when farm buildings were wrecked in storms, trucks damaged or overturned in transit or stock travelling on foot were stampeded, (c) deliberate release of farm stock to found a colony or to improve the conformation of existing feral pigs, (d) deliberate introduction of feral pigs to start a colony. All these factors are still operating, and many new colonies have been established in the last 10-15 years by

the accidental or deliberate release of domestic stock. On Kangaroo Island a few farmers drove their pigs into the bush about 50 years ago, after a religious revivalist persuaded them that they were unclean animals. These pigs appear to have joined the existing feral colony.

In the case of infested areas near the coast, some local residents were of the opinion that they escaped from wrecked vessels. None could supply other than vague information as to the identity of the craft or the approximate year it went ashore. In every case it was possible to obtain a more probable and well authenticated explanation.

Some of the older existing colonies, viz., the greater part of Queensland and the Northern Territory, Upper Darling and Lachlan-Murrumbidgee Junction (N.S.W.), Flinders Island (Tas.), Kangaroo Island (S.A.) and Darling Ranges (W.A.) originated prior to the memory of the oldest residents (*i.e.* before about 1870). In an attempt to discover their origin a search was made of the available published works of naturalists and travellers. The earliest records of feral pigs which we traced were Finch-Hatton (1885) in Queensland on the Dawson River and Dahl (1926) on the Adelaide River (N.T.) and near Broome (W.A.) in 1894-6.

The existence of feral pigs in Australia was not generally recognized by naturalists until comparatively recently as the following specifically stated that they did not exist in this country, Afalo (1896), Semon (1899) and Stead (1937).

To ascertain whether feral pigs existed outside the occupied area in the early colonial days the journals of a number of explorers and navigators were studied in detail, selecting those who in the period immediately prior to the expansion of the pastoral industry (1830 to 1865), passed through country now known to be pig infested. The list of journals studied and the routes followed are given in Fig. 1. Although the writers of these journals usually listed the game observed and shot each day and noted the existence of feral cattle, buffalo, dogs, cats, deer and stray horses, only two references to feral pigs were found. Stokes (1837-43) in the *Beagle* saw a few pigs which had been liberated on an island in Bass Strait, and Jukes (1847) in the *Fly* liberated a boar and a sow on an island near the Queensland coast but shot both them and their progeny a year later.

The true explanation of the origin of these colonies appears to lie in the evolution of pig farming in the early days. Some swine were introduced with the first fleet (1788) and others were brought in on many subsequent occasions. At first they were





permitted to roam at large around the settlement at Sydney Cove and soon became a nuisance, and as early as 17 February 1795 orders were issued that they could be shot if they trespassed on private property (Robertson 1932). Later a pound system was introduced but they continued to cause trouble for another ten years. They were allowed to run in the bush on an island adjacent to Norfolk Island, but later this project was abandoned as the flesh was unpalatable due to the retention of food flavours. On the mainland, as the occupied area extended pigs were carried into the interior and again allowed to roam at large as the following extracts show:—

They (pigs) are allowed to run in the bush during the day, just giving each a cob of maize to bring it home in the evening, if not employing a man to look after them. They feed on grasses, herbs, wild roots and native yams, on the margins of rivers or marshy grounds, and also on frogs, lizzards etc. which come their way. (Cunningham 1827.)

Pigs thrive and breed readily, forming on the whole a valuable stock. They must, however, be allowed to run loose or they will hardly pay. They are, as may be supposed, very troublesome and destructive, and all cultivation must be defended by pig-proof fences . . . . Where there is either a marsh or a brush in the neighbourhood of the station they will generally manage to feed themselves, though a little corn night and morning will keep them in better order and prevent their becoming too wild. (Henderson 1851.)

The latter is of particular interest as it is from a book giving general information for the guidance of farmers and other settlers.

Thus until about the middle of the nineteenth century or shortly afterwards pigs were kept under semiferal conditions in the swamps, marshes and other rough country. After about 1865 when the fencing-in of properties became general and the original runs and stations were subdivided, these pigs would lose their identity as the property of particular owners, and would be left untended to become a pest in later years.

#### EUROPEAN WILD BOARS

European wild pigs were introduced into the Cherokee National Forest, Tennessee, U.S.A., to provide a game animal for hunting (Stegman 1938), and into the Kluitjieskraal plantation in South Africa to control destructive insect larvae (Thomas and Kolbe 1942). We were unable to trace any similar importations into this country.

#### ASIATIC PIGS

For hundreds of years the so-called 'Malays' from Timor and adjacent islands have collected pearls and beche-de-mer from the northern coast of Australia. Although some would carry pigs as



live cargo, they were seldom on friendly terms with the aborigines and would be unlikely to leave any animals behind at their shore stations.

According to the Historical Records of Australia, Series III, Vol. VI, pp. 711 and 841, twenty pigs were brought from Koepang (Timor) to Melville Island in December 1827. A few months later when that settlement was abandoned, all stock (including the pigs) were transferred to Raffel's Bay on the Coburg Peninsula. When the latter settlement was also abandoned shortly afterwards the fattest stock were slaughtered and salted down for the journey to Sydney. The remainder, including sheep, cattle, pigs, fowls and a pair of horses, were driven into the bush. Thus some of the original Timor pigs may have been included amongst those that were liberated.

During the mass immigration of Chinese in the Gold Rush many could have brought pigs with them. In fact, Dahl (1926) writing in 1894-6 refers to the feral pigs of the Northern Territory as Chinese pigs.

We received one unconfirmed report that some pigs were brought to the Daintree River in Queensland from New Guinea before 1900. In addition, Dr. F. H. S. Roberts, of the Division of Entomology of the Commonwealth Scientific and Industrial Research Organization, advised us that he once found *Gnathostoma hispidum* in a feral pig from the York Peninsular. This parasite is common in pigs in New Guinea but has never been seen in domestic pigs in Australia. Both Roberts and Seddon (1947) have suggested this as indicating the illegal entry of 'knackers' pigs.

It is not possible to solve the problem by examining specimens from feral pigs for features characteristic of Asiatic stock as pigs from Siam or some adjacent country were imported into England between 1750 and 1800 and used to improve the Berkshire, Middle White and possibly other breeds (Lynch 1914, Robinson 1922, and Peirson & Owtran 1945). As both these breeds were very popular in Australia their feral descendants could easily carry these characteristics.

#### BASS STRAIT SEALERS

Early in the nineteenth century the islands in and near Bass Strait were occupied by a semi-nomadic, polyglot collection of escaped convicts, half-castes and a few free men. These were referred to collectively as 'Sealers' or 'Straitsmen'. They lived by collecting young sea birds, feathers, eggs, fish, seal skins, blubber, etc. They moved from island to island following available

supplies. Jukes (1847) and others noted that they had put pigs, dogs, rabbits and other stock on various islands to breed at will, thus providing a useful addition to the food supply. The existing colonies on French and Kangaroo Islands no doubt originated in this way. The use of old place names such as Hog Bay (Kangaroo Island) is usually taken as an indication that feral pigs have been located there for a considerable time (Hallack 1905 and Martin 1943).

### THE CAPTAIN COOK HYPOTHESIS

It is commonly held, particularly in Northern Queensland, that Captain Cook introduced pigs into Australia and in consequence feral pigs are sometimes termed 'Captain Cookers'. The liberation is supposed to have been made at the Endeavour River (near Cooktown) where Cook careened his barque for repairs.

We could not find any evidence to support this hypothesis which is probably a confused version of the deliberate liberations in New Zealand.

An examination of the following copies of Cook's Journal and Log: (a) as edited by Synge (1897); (b) transcribed by Bonwick (1886); and reprinted together with those of several other members of the crew of the Endeavour in The Historical Records of N.S.W., Vol. I, Part I, 1893, provided the following facts which indicate that Cook did not liberate pigs on the mainland of Australia.

1. After Cook had completed his observations of the Transit of Venus he reprovisioned at Tahiti and then sailed west discovering and surveying the coasts of New Zealand and Australia. The provisions from Tahiti included a number of live pigs, but the majority died from exposure before reaching New Zealand and very few were still alive when the *Endeavour* was in Australian waters.
2. No pigs were liberated in New Zealand during the First Voyage. The introductions were made during the Second and Third Voyages.
3. Cook careened his ship at the Endeavour River to repair the damage caused by striking a coral reef six days before. Although this was successful it was found that the pumps were almost useless. Cook was therefore caught in the narrow waters between the Barrier Reef and the mainland, with no knowledge of the location of the few passages to the coral sea or of the route to the nearest known settlement (Java), and dependent on his own supplies and the soundness of his ship for an indefinite period. It is considered

highly improbable that he would discard such valuable cargo as live pigs under such circumstances.

4. The aborigines were at first tolerant but later openly hostile to the white visitors, and towards the end of their stay fired the grass around their camp on two occasions. This was in marked contrast to the usually friendly and tolerant attitude of the Maoris.

Describing one of these fires, Cook stated:—

Luckily at this time we had hardly anything ashore besides the forge and a sow with a litter of young pigs, one of which was scorched to death in the fire. (Synge 1897.)

It is considered unlikely that pigs would be deliberately released under these circumstances and that he would have mentioned any accidental escape.

5. Although the presence of pigs on a number of islands of the South Pacific was noted in the account of the First Voyage, the first mention of the intention to release them in New Zealand occurs early in the account of the Second Voyage. This suggests that the decision was made in England between the two Voyages.
6. During the Second Voyage, sheep, pigs and geese were bought at Capetown with the deliberate intention of liberating them in New Zealand. Unfortunately the majority of these died before reaching that country, and the few survivors were showing signs of malnutrition. These and others obtained from Tahiti were liberated at several points in New Zealand. Cook did not revisit Australia during the Second Voyage.
7. On the Third Voyage, Cook obtained further pigs from Capetown. Although these were liberated chiefly in New Zealand, two were set free at Adventure Bay on the Island of Bruni near Tasmania, which Cook thought was part of the mainland of Australia. Cook had difficulty in restraining the aborigines from killing them, and had no doubt as to their ultimate fate.

He does not mention any previous liberations in Australia, and as this was his only contact with this country after his First Voyage there were no other opportunities for introductions.

#### ASSOCIATION OF PIGS WITH ABORIGINES

Although it is generally agreed that there is no evidence of aborigine-pig association, no great reliance can be placed on negative evidence. More definite information was supplied by J. W. Chapman, of the Edward River Mission, Queensland, who





FIG. 2

A young, sty-reared, 'Recent Type' feral sow, captured near the Lachlan-Murrumbidgee junction, N.S.W. Note the well-developed mane.



FIG. 3

An 'Early Type' feral boar, shot near Albatross Bay, Cape York, Queensland.

*Photograph by D. L. Belcher, Weipa Mission, North Queensland.*





FIG. 4

A mature feral sow from the Macquarie Marshes, N.S.W.

Photograph by *Sgt. H. P. Orman, Moree, N.S.W.*



FIG. 5

A mature, sty-reared, 'Recent Type' feral sow captured near the Lachlan-Murrumbidgee junction and used for breeding baconers.

Photograph by *F. J. Thompson, Manangatang, Vic.*





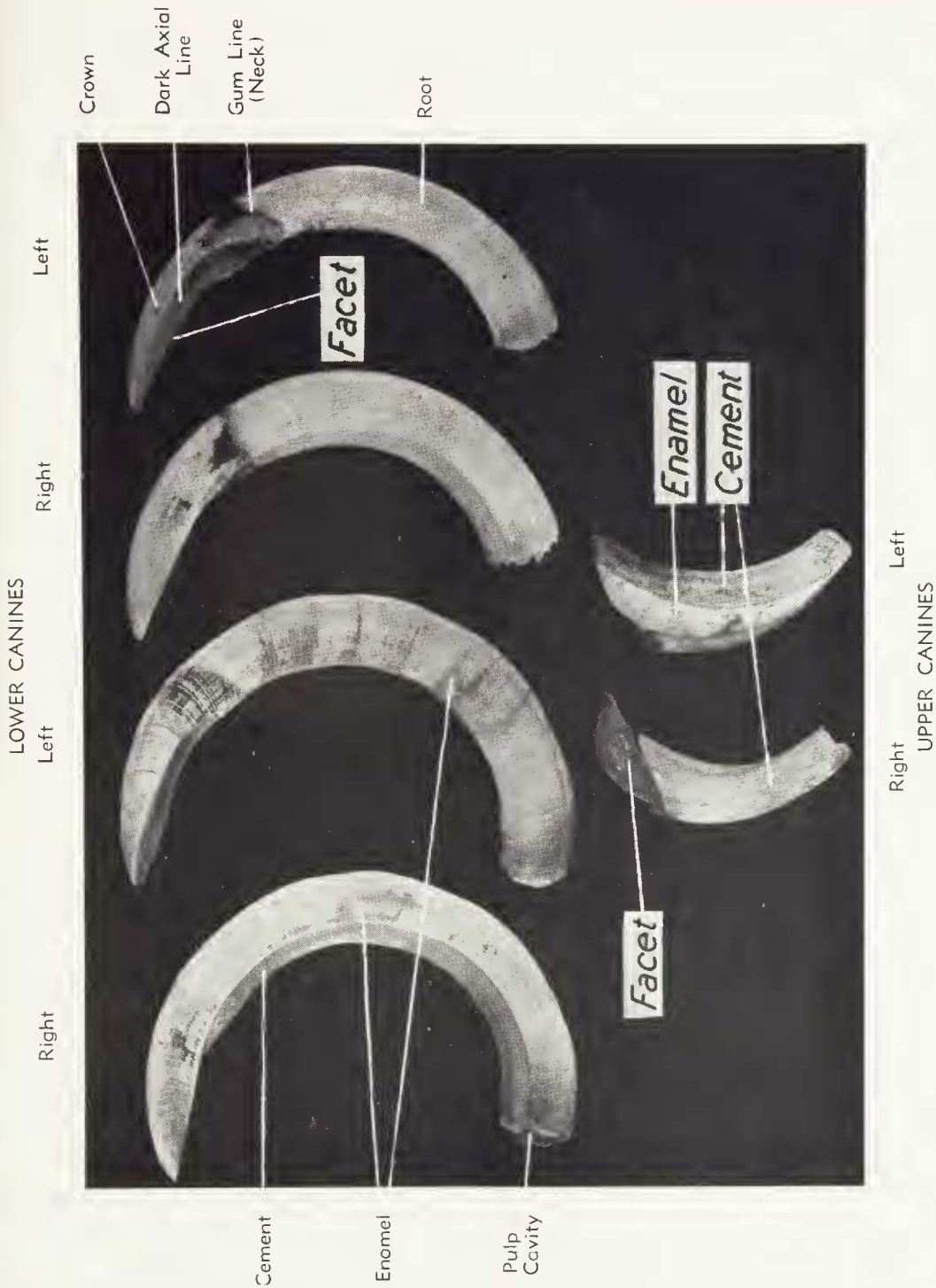


FIG. 6  
Tusks from feral boars.



informed us that there is no aboriginal word for pig, and that the natives use the English term 'pig' or some modification such as 'piggy-pig'. This fact was investigated by the staff of the National Museum, Melbourne, who reported that no aboriginal word for pig is listed in any of the vocabularies in their possession.

### APPEARANCE

The feral pigs are extremely variable in their appearance although in some areas local types are recognized by the presence of some characteristic colour, marking or other feature.

In general the feral pigs (Figs. 2 to 5) resemble poor type domestic pigs but are lean and muscular with narrow backs, usually referred to as 'slab-sided' or 'razor-backed'. The predominant colour is described as black or black and white, but this includes rusty or reddish blacks and blue-blacks. Other colours are reds, fawns, duns, roans, white and mixed colours. Occasionally agouti coloured animals are seen but they are comparatively rare. White saddles, spots and tiger markings have been noted in a few districts. In some localities whole colonies of white pigs have been observed.

The majority of pigs have large heads with long snouts although short snouted animals are sometimes seen.

The shoulders and neck, particularly in the boars, are well developed. This appears chiefly to be due to the exercise of rooting, as the shoulders and necks of sty-reared feral pigs are not very large.

In some animals there is a mane of long erect bristles extending along the mid-dorsal line for a variable distance from the head (Fig. 2).

Old boars usually have well developed keratinous plaques or shields on their shoulders. The horny layer in this region may be  $\frac{3}{4}$  in. (2 cm. thick).

There are two extreme types of feral pigs which may conveniently be designated the 'Early Type' and the 'Recent Type'. There is, however, a large and varied range of intermediate forms. The early type pigs appear to be becoming increasingly scarce, and the recent type the predominant animal.

The early type pig is described as small, black or dark red in colour, with a large head and shoulders, narrow back and very small hind legs. The sows would not weigh more than about 70 lb. and the boars about double that weight (Fig. 3).

The recent type pig resembles a poorly developed modern domestic pig. These are relatively larger, the sows being up to

about 150 lb. and the boars up to 300 lb. or even more. They are commonly black or dark red, but a high proportion are of lighter or mixed colours. White pigs are sometimes observed. The head and shoulders are large and well developed, the back is broader and the disproportion between the fore and hind legs less marked (Figs. 4 and 5.)

It is considered that the pigs of the early type are the direct descendants of those which escaped or were liberated early in the settlement of the continent (70 to 120 years ago), while the recent type pigs are the progeny of recent additions.

### *Juvenile Striping.*

Dorsal longitudinal stripes in shades of brown and fawn are sometimes seen in the suckers, but they disappear as they grow older.

Unfortunately this subject was not specifically included in the list of questions asked, although it is now realized that it might provide information regarding the possible introduction of Pacific Island pigs into this country. Dorsal stripes in the young are rarely seen in the domestic breeds in this country, although it is the normal colour in New Guinea and the adjacent islands.

Some observers volunteered the information that they had noted stripes in the young local pigs. All but two of these reports referred to the area between Cooktown and Cairns (North Queensland). The two exceptions were of a general nature and did not apply to any particular district.

### *Tusks* (Fig. 6)

The canine teeth or tusks of the male are large, well developed, and project out of the mouth and act as formidable weapons of offence.

The lower canines are 150-300 mm. (5-12 inches) long, triangular in cross-section with sides 16-25 mm. ( $\frac{5}{8}$ -1 inch) wide. They are curved upward, outward and backward, forming an arc of a circle slightly less than 60 mm. (2 $\frac{3}{8}$  inches) in diameter. The lesser curvature is covered with yellowish cement and the other two with creamy-white enamel. All surfaces are marked by longitudinal and transverse ridges. Approximately four-fifths of the tooth is embedded in the lower jaw. The canine teeth grow continuously during life as they have permanent pulp cavities.

The upper canines are considerably shorter, being about 90 mm. (3 $\frac{1}{2}$  inches) long and 25 mm. (1 inch) wide. They are approximately oblong in cross section, and curve outward and backward



in a horizontal plane. The greater curvature is covered with enamel, and the remaining surfaces with cement.

The function of the upper canines is to act as whetstones to the lower teeth, keeping them sharp and worn down to the correct length. By this means the lower tusks are provided with pointed, razor-sharp facets 35-70 mm. ( $1\frac{1}{2}$ - $2\frac{3}{4}$  inches long).

If an upper canine is accidentally or deliberately removed, the corresponding lower one will continue to grow in a complete circle, ultimately re-entering the mandible. According to Troughton (1943) the natives of New Guinea sometimes deliberately remove the upper canines to produce these overdeveloped teeth for bangles. On the mainland, tusks are frequently collected and polished for ornamental purposes.

During the course of this investigation a number of polished and natural tusks were made available for detailed examination. These consisted of 23 pairs of lower canines and a pair of upper canines. Seventeen lower pairs and the single upper pair were collected in Queensland by Mr. E. J. Shelton, of the Queensland Department of Agriculture and Stock. One pair of lower canines was collected from Southern New South Wales by Mr. A. Murdoch of Melbourne, and the remaining four by Mr. K. C. Edwards from Kangaroo Island.

The only reasonably constant dimension was the radius of the greater curvature of the lower tusks. In the series of 23 pairs examined the range was 48 to 64 mm., the mean 57.5 mm. and the standard error  $\pm 1.2$ . There was so little variation in this measurement that it may be of value in the classification of the genus *Sus*. Unfortunately this possibility cannot be explored as very little suitable material is available in Australia.

## GEOGRAPHICAL DISTRIBUTION

(Fig. 7)

The position is far from static, as the pigs continually infiltrate into new suitable areas, and at the same time are slowly being eliminated by the advance of closer settlement. For this reason, the present distribution can only be described in general terms.

The pigs are not evenly scattered throughout the infested areas, but are located in colonies on water courses, in swamps, and in rough and heavily timbered country. In the north-eastern part of the continent, the colonies are regarded as contiguous, as they lie mainly within the normal wandering range (10-20 miles) or along natural lines for expansion, such as permanent or occasional water-courses, coastal swamps, etc.